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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,960	12/04/2002	Gopal B. Avniash	125517/GEM-0071	2536
23413	7590	02/24/2005	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			JUNG, WILLIAM C	
			ART UNIT	PAPER NUMBER
			3737	

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,960

Applicant(s)

AVNIASH ET AL.

Examiner

William Jung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-18, 20-27, 29, and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by *Salla et al* (US 6,771,999 B2).

Salla et al anticipate all claimed features in claims 1-18, 20-27, 29, and 30.

Claims 1, 10-12, 16, 18, 21, 24, 25, and 27: Salla et al disclose a method and system where a medical imaging system comprising steps of acquiring medical images with cardiac gating (col. 2, lines 38-58). The steps above also include selecting a non-electrical sensor from a group consisting of an acceleration sensor and a force sensor and utilizing the non-electrical sensor to acquire information for gating (col. 3, lines 13-20; col. 4, lines 23-30; col. 4, lines 35-59). The described sensor interfaces having first end and a second end, the first end adapted for securing to a patient, the second end coupled to the sensor and providing a fluid filled transmission tube having a first end and a second end; attaching the first end of the fluid filled transmission tube to the patient; and, attaching the second end of the fluid filled transmission tube to a sensor. In addition, the method above includes attaching the first end of the fluid filled transmission tube to the patient comprises wherein attaching the first end to a chest wall of the patient adjacent the heart (col. 4, lines 60-64).

Claims 2-6: Salla et al disclose that the gating method and apparatus above is used within MRI, CT, PET-CT, x-ray and ultrasound (col. 1, lines 22-27; col. 4, lines 39-46).

Claims 7-9, 14, and 15: Salla et al disclose that the method further comprises a timing of a gating signal to be before the displacement of a body part (col. 4, lines 7-12) and the gating signal analysis using a signature analysis, which include algorithm trainable within database and employing a pattern recognition technique to extract a gating signal (col. 2, lines 47-67; col. 5, line 66 – col. 6, line 11).

Claim 13: Salla et al further disclose a step of calculating a first derivative of the acceleration waveform to obtain a jerk waveform, determining a salient-peak of the jerk waveform, and utilizing the salient-peak as a 'trigger point for cardiac gating (col. 5, lines 16-25).

Claim 17: Salla et al disclose the method above wherein selecting a non-electrical sensor comprises selecting an accelerometer, the method further comprising obtaining an acceleration waveform with the accelerometer, integrating the acceleration signal twice to obtain a resultant signal, band pass filtering the resultant signal to remove frequencies that cause drift in the resultant signal and frequencies corresponding to cardiac motion to obtain a filtered signal, analyzing the filtered signal for salient peaks, and obtaining a trigger point for respiratory gating (col. 5, lines 8-25).

Claim 20: Salla et al further disclose the method above where method further comprises obtaining an acceleration waveform from the accelerometer, calculating a time delay for information being transmitted from a heart of the patient to a peripheral pulse, and characterizing the signal (figure 5; col. 4, line 64 – col. 5, line 7).

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Claims 22, 23, 29, and 30: Salla et al illustrate in figure 4 where the apparatus described above comprises a sensor box 26 for acquiring information from the sensor and means for signal processing and computer analysis, wherein the means for signal processing and computer analysis receives input from the sensor box (col. 4, lines 50-59; figures 8 and 9).

Claim 26: Salla et al disclose that the sensor 12 may be removed from the imaging field of view during the imaging process (col. 4, lines 39-43).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 19, 28, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Salla et al* as applied to claims 18 and 25 above, and further in view of *Arcelus* (US 6,149,602).

Salla et al substantially disclose all claimed features in claims 19, 28, and 31 as described above. However, Salla et al do not disclose that the accelerometer is attached to a wrist of the patient or the sensor bandwidth of 125 Hz. In measuring ECG, it is well known in the art as taught by Arcelus, that the sensor on the ECG can be attached to the patient's wrist. In addition, Arcelus's device has a bandwidth limitation of 125 Hz (col. 4, lines 15-21; col. 5, lines 25-32). Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to apply Arcelus's teaching to Salla et al to achieve the claimed invention.


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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Jung, Ph.D. whose telephone number is 571-272-4739. The examiner can normally be reached on Mon-Fri 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


February 20, 2005


BRIAN L. CASLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700